



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,187	06/30/2003	Heume Il Baek	049128-5114	8785

9629 7590 05/16/2006

MORGAN LEWIS & BOCKIUS LLP  
1111 PENNSYLVANIA AVENUE NW  
WASHINGTON, DC 20004

EXAMINER

PIZIALI, JEFFREY J

ART UNIT	PAPER NUMBER
----------	--------------

2629

DATE MAILED: 05/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/608,187

**Applicant(s)**

BAEK ET AL.

**Examiner**

Jeff Piziali

**Art Unit**

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2006 and 14 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 4,5,7,8,13 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3,6 and 9-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Election/Restrictions***

2. Applicants' election with traverse of Species I (i.e. Claims 1-3, 6, and 9-12) in the reply filed on 1 March 2006 is acknowledged. The traversal is on the alleged grounds that there does not exist a serious burden on the examiner if restriction is not required, that the examiner has not adequately explained why a serious burden exists, that Species I and Species II are not separate species, that all the hitherto claimed subject matter is sufficiently related for a thorough search of any one species to encompass a search of the subject matter of the remaining species, and that "the total number of species is not an unreasonable number of species to examiner" (see Page 2, Line 9 of the 'Response to Election of Species Requirement' filed 1 March 2006). That final quote by the applicants is taken as an open acknowledgement that there are in fact a plurality of distinct and independent species being instantly claimed.

The aforementioned alleged grounds are not found persuasive. The species are independent or distinct because the species do not overlap in scope, i.e., are mutually exclusive (wherein each separate species is drawn to a mutually exclusive electric field alignment method); the species are not obvious variants; and the species each have a materially different design, mode of operation, function, and effect. Furthermore, each species would require a different

Art Unit: 2629

field of search (Species I requiring at least a separate field of search in class 345, subclass 208 -- i.e. waveform generator coupled to display elements; Species II requiring at least a separate field of search in class 345, subclass 94 -- i.e. liquid crystal display waveform generation; and Species III requiring at least a separate field of search in class 345, subclass 97 -- i.e. ferroelectric liquid crystal elements), ultimately resulting in a burdensome search and examination. Although the aforementioned divergent subject matter was more or less intact at the time of the previous office action (mailed 11 August 2005), the applicants' claim amendments and ensuing remarks filed 14 November 2005 have persuaded the examiner that independent/distinct species are definitely being claimed, which if left unchecked would result in a serious examination burden henceforth.

The requirement is still deemed proper and is therefore made FINAL.

3. Claims 4, 5, 7, 8, 13, and 14 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to non-elected species, there being no allowable generic or linking claim. Applicants timely traversed the restriction (election) requirement in the reply filed on 1 March 2006.

4. As a courtesy, due to the applicants' traversal of the restriction (election) requirement, this office action addresses all pending claims (even the non-elected/withdrawn ones). However, hither forth and in any future correspondence, the non-elected claims will be treated as being withdrawn from prosecution.

Art Unit: 2629

5. Applicants are reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Elected claims 1-3, 6, and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuda et al (US 4,842,371 A) in view of Saishu et al (US 5,949,391 A).

Regarding claim 1, Yasuda discloses an electric field alignment method of a twisted nematic liquid crystal display device (see Column 22, Lines 17-21), comprising: connecting a plurality of thin film transistors [Fig. 1; T<sub>11</sub>-T<sub>44</sub>] arranged along a first direction to a plurality of data lines [Fig. 1; S<sub>1</sub>-S<sub>8</sub>] in an offset configuration between adjacent data lines (see Column 6, Line 54 - Column 7, Line 40); supplying a turn-ON voltage [Fig. 4; b & c] at a level greater than a threshold voltage of the thin film transistors during an electric field alignment of liquid crystal material of the liquid crystal display device at least more than two successive times to a plurality of gate lines [Fig. 1; G<sub>1</sub> & G<sub>2</sub>] arranged along a second direction; and supplying voltages [Fig. 4; d] of opposite polarity to the adjacent data lines during the electric field alignment while

Art Unit: 2629

maintaining a voltage [Fig. 4; e-j] of a liquid crystal cell of the liquid crystal display device during the electric field alignment (see Column 8, Line 67 - Column 9, Line 49). Yasuda does not expressly disclose the twisted nematic liquid crystal display could also be a ferroelectric liquid crystal display.

However, Saishu does disclose using ferroelectric liquid crystal in place of twisted nematic liquid crystal (see Column 1, Lines 20-32). Yasuda and Saishu are analogous art, because they are from the shared field of driving thin film transistors in an offset configuration for liquid crystal display devices. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to replace Yasuda's twisted nematic liquid crystal with Saishu's ferroelectric liquid crystal, so as to improve display response speed and viewing angle.

Regarding claim 2, Yasuda discloses the liquid crystal cell operates in a Half V-Switching Mode (see Fig. 13; Column 15, Lines 3-12).

Regarding claim 3, Yasuda discloses supplying the turn-ON voltage to the gate lines is performed at least between ten to four-hundred times to the gate lines (see Fig. 10; Column 11, Lines 54-62).

Regarding claim 6, Yasuda discloses supplying the voltage below the threshold voltage of the thin film transistors to the gate lines includes supplying a voltage between 0-1V to the gate lines during the electric field alignment (see Fig. 4; Column 8, Line 67 - Column 9, Line 49).

Regarding claim 9, this claim is rejected by the reasoning applied in rejecting claim 1; furthermore, Yasuda discloses a gate driving circuit [Fig. 1; G<sub>1</sub> & G<sub>2</sub>] and a data driving circuit [Fig. 1; 111 & 112] (see Column 6, Line 54 - Column 7, Line 40).

Regarding claim 10, this claim is rejected by the reasoning applied in rejecting claim 2.

Regarding claim 11, this claim is rejected by the reasoning applied in rejecting claim 3.

Regarding claim 12, Yasuda discloses the data driving circuit supplies video data [Fig. 4; d] having different polarities to the adjacent data lines during driving of the display device (see Column 8, Line 67 - Column 9, Line 49).

8. Non-elected and withdrawn claims 4, 5, 7, 8, 13, and 14 are also rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuda et al (US 4,842,371 A) in view of Saishu et al (US 5,949,391 A).

Regarding claim 4, this claim is rejected by the reasoning applied in rejecting claim 1; furthermore, Yasuda discloses supplying a voltage [Fig. 4; b & c] below a threshold voltage of the thin film transistors [Fig. 1; T<sub>11</sub>-T<sub>44</sub>] to a plurality of gate lines [Fig. 1; G<sub>1</sub> & G<sub>2</sub>] during an electric field alignment of liquid crystal material of the liquid crystal display device (see Column 8, Line 67 - Column 9, Line 49).

Regarding claim 5, this claim is rejected by the reasoning applied in rejecting claim 2.

Regarding claim 7, this claim is rejected by the reasoning applied in rejecting claim 1; furthermore, Yasuda discloses maintaining a plurality of gate lines [Fig. 1; G<sub>1</sub> & G<sub>2</sub>] in an electrically floating state [Fig. 4; b & c] during an electric field alignment of a liquid crystal material of the liquid crystal display device (see Column 8, Line 67 - Column 9, Line 49).

Regarding claim 8, this claim is rejected by the reasoning applied in rejecting claim 2.

Regarding claim 13, this claim is rejected by the reasoning applied in rejecting claims 1, 2, and 9.

Regarding claim 14, this claim is rejected by the reasoning applied in rejecting claims 1, 7, and 9.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).



*Response to Arguments*

10. Applicants' arguments filed 14 November 2004 have been fully considered but they are not persuasive. The applicants contend that the cited and combined prior art of Yasuda et al (US 4,842,371 A) in view of Saishu et al (US 5,949,391 A) neglects teaching "the electric field alignment of a ferroelectric liquid crystal (FLC) display device of the present invention" (see Pages 8-9 of the 'Amendment' submitted 14 November 2004). However, the examiner respectfully disagrees.

Yasuda discloses an electric field alignment method of a twisted nematic (TN) liquid crystal display device (see Column 22, Lines 17-21). Yasuda does not expressly disclose the twisted nematic (TN) liquid crystal display could also be a ferroelectric liquid crystal (FLC) display. However, Saishu clearly does disclose using ferroelectric liquid crystal (FLC) in place of twisted nematic (TN) liquid crystal (see Column 1, Lines 20-32). Yasuda and Saishu are analogous art, because they are from the shared field of driving thin film transistors in an offset configuration for liquid crystal display devices. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to replace Yasuda's twisted nematic liquid crystal with Saishu's ferroelectric liquid crystal, so as to improve display response speed and viewing angle.

By such reasoning, rejection of the claims is deemed necessary, proper, and thereby maintained at this time.

***Conclusion***

11. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

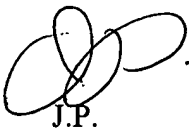
Art Unit: 2629

The applicants are hereby notified that the examiner's art unit has recently changed from Art Unit 2673 to Art Unit 2629, please direct all future correspondence accordingly. Thank you.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



J.P.  
12 May 2006



**BIPIN SHALWALA**  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600